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CONCERNING THE DIAGNOSIS OF LESIONS OF THE BASE OF THE BRAIN.

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This paper is not intended as an exhaustive treatise upon the above subject, and no attempt will be made to show the diagnosis between different forms of cerebral lesion. So far as physiological symptoms are concerned, the nature of the lesion is unimportant, a fibrous tumor, or tubercle, hæmorrhage or softening, or even congestion, if occupying the same place and pressing equally on surrounding parts, will produce exactly the same physiological changes.

Lesions of the hemispheres or cerebellum are not considered, partly from the as yet unsatisfactory state of our knowledge concerning the physiology of those parts, and partly from the great length to which the paper would be continued.

What is said in regard to diagnosis will be applied primarily and principally to those cases where the amount of lesion is small. When the lesion is extensive the same reasoning will apply, extended and modified according to the case; yet in extensive injury of brain substance it becomes difficult to decide exactly how extensive the injury is; and in such cases diagnosis becomes less important, for they are usually quickly fatal. The class of cases in which the most benefit can be obtained are those where the injury is at first small; subsequently, by comparing the symptoms with those present at the commencement, the physician can decide whether there is extension of disease, or whether there is any prospect of improvement, perhaps recovery.

No attempt is made to give the credit of the different parts of this paper to the authors from whom the facts are taken, except the cases quoted. Clarke, Luys, Quain, Hirschfeldt and other anatomists, Longet, Vulpian, Brown-Séquard, Funke, Bernard and other physiologists have been consulted.

It is not necessary to give a complete review of those parts of anatomy which can be found in any text book. Only so much as relates to the deep origin of the nerves, their anastomosis with each other, their character, whether motor or sensory, and the region to which they are distributed, is given.

The nomenclature of Sœmering, dividing the cranial nerves into twelve pairs, seems to be most advantageous for present purposes.

The first pair, olfactory, arise each by three roots, which can be seen on the base of the brain, around and on the locus perforatus anticus, spreading out fan-shaped. The fibres of the inner root decussate in front of the tuber cinereum, and are lost in a small mass of grey substance on each side of the septum lucidum. The middle root crosses the locus perforatus, turns upwards and inwards, decussates, and probably is lost in the olfactory ganglion. The external root does not decussate, it curves around the lower edge of the corpus striatum, and its fibres are lost in a nucleus of grey substance in the anterior part of the sphenoidal lobe, forming the olfactory ganglion. This ganglionic mass is connected by radiating fibres with the septum lucidum, the continuation of the grey substance of the cord. It is also connected through the tænia semicircularis with the anterior part of the optic thalamus.

The second pair, the optic nerves, are distributed solely to the retina. The optic nerves of the two sides are united at the commissure, and their fibres in part decussate. They then pass around the crura cerebri, at first are cylindrical, then becoming flattened, they pass along the border of the optic thalamus and divide into two roots, one of which terminates in the external corpus geniculatum, and the other in the internal corpus geniculatum. From these two ganglionic bodies fibres pass either to the middle nucleus of the optic thalamus, or to the corpora quadrigemina.

The third pair, oculorum motores communi, arise apparently from the inner border of the crura cerebri, immediately in front of the pons. Their fibres pass inwards, some are lost in the mass of cells in the

locus niger and some turn towards the median line to decussate with those coming from the opposite side: some pass through the crus to the floor of the fourth ventricle, and seem to be lost in a nucleus of cells in the immediate vicinity of the origin of the fourth nerve.

This nerve supplies the recti muscles of the eye, except the external, and the levator palpebræ. Fibres pass also through the ciliary ganglion to the iris.

The fourth nerve, patheticus, arises apparently from the upper part of the valve of Vieussens, below the corpora quadrigemina. Its fibres in part decussate across the roof of the fourth ventricle, and then are lost in a mass of highly pigmented cells in the floor of the fourth ventricle. Other fibres pass directly to the place of origin. Groups of nerve cells are found scattered among the bundles of fibres.

From its place of origin the fourth nerve winds around the crus cerebri, passes with the third through the sphenoidal fissure and supplies the superior oblique muscle of the eye.

The fifth nerve, trifacial, arises apparently from the side of the pons Varolii, between the middle and superior crura cerebelli, a little above the middle of the pons.

This nerve has two roots, a larger sensitive root, and a smaller motor root; the latter arises a little above the former.

These roots, after entering the pons, pass obliquely inwards and downwards, separating somewhat more one from the other, and finally turn downwards through the medulla, the sensitive fibres passing through the grey tubercle, which is the continuation of the posterior cornu, the motor fibres passing down anterior to and near the origin of the hypoglossal (Clarke). I have noticed that some of the fibres, especially of the motor tract, when they enter the pons, seem soon to turn upwards, but have not been able as yet to trace them far.

The Gasserian ganglion is in communication with filaments of the sympathetic nerve through the carotid plexus; the nasal branch furnishes the long root to the ciliary ganglion, and the long ciliary nerves to the globe of the eye; branches are also furnished to the facial and to the spheno-palatine, otic and submaxillary ganglia. The general distribution can be found in text books; it supplies sensitive nerves to most of the face and the cavities connected with the face; it supplies nerves of taste to the anterior two-thirds of the tongue; its motor branch is distributed to the muscles of mastication, the temporal, pterygoids and the masseter, and to the buccinator, mylo-hyoid and the anterior belly of the digastric.

The sixth nerve, or abducens, arises from the lower edge of the pons at the upper border of the anterior pyramids. Its fibres then pass backwards in a waving line, and curving slightly outwards break up and are lost in the immediate vicinity of the fasciculus teres, the vertical portion of the seventh. Clarke has not been able to trace them either up or down the floor of the fourth ventricle. Its fibres are in connection with a part of a nucleus of cells, with the other part of which the seventh is connected.

After its exit from the pons the sixth nerve leaves the cranium through the sphenoidal fissure and is distributed to the external rectus muscle exclusively. It receives a few sympathetic fibres from the internal carotid plexus.

The seventh nerve, the facial, arises from the edge of a sulcus on the lower and outer border of the pons, between the middle and inferior peduncles of the cerebellum.

Its fibres in the medulla curve around near the edge of the restiform body to the floor of the fourth ventricle; some are there lost in a nucleus of cells, others plunge downwards, forming the fasciculus teres, and then turn forwards again, and are lost in a nucleus near the anterior part of the medulla. A third portion of fibres decussate with those of the opposite side.

This nerve at its origin is purely a motor nerve, and it becomes sensitive only after receiving anastomosing fibres from the fifth nerve. It is distributed to the muscles of the mouth, nose, ear, and to the orbicular muscles of the eye, to the muscles of the scalp, and to the platysma. It also furnishes filaments to the skin of the side and back of the head, to the ear and to the upper part of the neck.

The posterior auricular branch is connected with the great auricular nerve of the cervical plexus, and with the auricular branch of the pneumogastric. The tempo-ro-facial division is connected with branches of the fifth nerve. The cervico-facial division is connected with the great auricular nerve of the cervical plexus within the parotid gland. The facial and its branches are also in connection with divisions of the sympathetic.

Although the anastomoses of this nerve are so numerous, the physiology and pathology of the central nervous system is not thereby complicated, if it is borne in mind

that at its origin it is purely a motor nerve, and that most of its connections are with the sensitive branches of the fifth nerve, its anastomoses with the great auricular of the cervical plexus being comparatively unimportant.

The eighth, or auditory nerve, arises along side of the seventh a little to the outside. Its fibres pass around and through the medulla to the auditory nucleus in the floor of the fourth ventricle near its lower part.

It is a nerve of special sense, hearing, and is distributed exclusively to the inner ear.

The ninth, or glosso-pharyngeal nerve, arises from the restiform body, near the sulcus between that and the olivary body. Its deep origin will be described in connection with the tenth nerve.

The glosso-pharyngeal leaves the cranium by the jugular foramen; it swells into two ganglionic enlargements, the jugular and the petrous. It is distributed to the membrane lining the tympanum and the Eustachian tube, and also to the mucous membrane of the pharynx and posterior third of the tongue. It receives branches from the pneumogastric and sympathetic. It also sends a filament to a few of the muscles of the pharynx and of the base of the tongue.

At its origin, this nerve is sensitive only. It furnishes the posterior third of the tongue and the pharynx with the sense of taste, and also supplies the common sensitive filaments to the mucous membrane of the parts to which it is distributed.

The tenth, or pneumogastric nerve, arises from the restiform body in a line with and below the ninth nerve. It passes into the medulla, and terminates in a nucleus of cells just on the side of and behind the central canal for the lower roots, on the floor of the fourth ventricle for the upper roots, and a little more anterior, away from the floor of that ventricle, for the most superior roots. Its nucleus blends with the nucleus of the spinal accessory below, and with that of the glosso-pharyngeal above; the latter, being a continuation of the nucleus of the tenth, occupies relatively nearly the same position, but is a little deeper seated towards the anterior part of the medulla, and is overlapped by the nucleus of the auditory nerve.

In its passage out of the skull, the pneumogastric passes through the jugular foramen, in which is the ganglion of the root. Lower down, after it passes out of the foramen, is the ganglion of the trunk.

At its origin, the pneumogastric is a sensitive nerve; it becomes a mixed nerve beyond the ganglion of the root, by virtue of the filaments which it receives from the facial and spinal accessory. At the lower ganglion, fibres are also received from the hypoglossal and spinal nerves. It is also connected with the sympathetic.

The pneumogastric gives off branches in its course down the neck: the pharyngeal, which is partly muscular, and partly distributed to the mucous membrane of the pharynx; the superior laryngeal, which supplies a few muscles, but is distributed mostly to the mucous membrane of the larynx, the vocal cords, the epiglottis and the base of the tongue; the recurrent laryngeal supplies principally the muscles of the larynx, and gives but few twigs to the mucous membrane. The pneumogastric also supplies branches to the lungs, heart, œsophagus and stomach, which are intimately connected with the sympathetic, forming complicated plexuses.

The eleventh, or spinal accessory nerve, arises from the lower part of the restiform body and from the lateral column of the cord, as low as the fifth or sixth, rarely seventh cervical nerve. The upper roots of the nerve can be traced to a nucleus below, and continuous with, the nucleus of the tenth nerve.

The lower roots in part curve sharply around after entering the cord, and pass into the anterior cornu; a part are lost in the tractus intermedio lateralis, and a part decussate with their fellows from the opposite side.

The nerve passes up the cord and leaves the skull with the pneumogastric. In the foramen it gives a branch to the ganglion of the root of the pneumogastric; it is also connected with the same nerve by other branches beyond the ganglion of the trunk. The rest of the nerve is distributed to the sterno-mastoid and trapezius, anastomosing with branches of the third and fourth cervical.

The spinal accessory is exclusively motor at its origin.

The twelfth, or hypoglossal nerve, arises by several filaments from the sulcus between the olivary body and the anterior pyramids. Its fibres pass through the medulla from forwards backwards, curving inwards, and can be traced to a nucleus of cells which lie in front of the central canal for the lower roots, and near the median furrow of the fourth ventricle for the upper roots. Some of its fibres can be seen to decussate.

It emerges from the skull by the anterior condyloid foramen. It is connected with the first and second cervical, with the pneumogastric, and with the sympathetic, and by the descendens noni with the second and third cervical. The descendens noni, usually regarded as a branch of this nerve, and which supplies most of the muscles of the neck, is thought by some to be derived from the cervical nerves, and only connected by juxtaposition with the twelfth nerve.

The hypoglossal supplies principally the muscles of the tongue with motor filaments.

In this account of the origin of several of the cranial nerves, mention was made of fibres which decussate with those from the opposite side without entering the nuclei of origin of the nerves. Later investigations with other means of preparation (using the chloride of gold to color the fibres) show that still other nerves terminate in a similar way. We are then, perhaps, justified in concluding that all the cranial nerves, in addition to the fibres which pass directly to a nucleus of cells, contain also fibres which decussate before entering a nucleus.

Facts in pathology prove that all the fibres which finally reach the sensorium decussate, and all impressions received in the brain, of which we are conscious, are received on the side opposite to that on which they originate, and all impulses of the will start from the side opposite to that in which they terminate in motion.

In studying the significance of symptoms with relation to the portion of the base of the brain in which the lesion is situated, it is found, as would be expected, that the symptoms vary with the height at which the lesion occurs. The same is true in lesion of the spinal cord; but the more complicated structure of the base of the brain renders it less easy to recognize the location of the lesion without an accurate knowledge of the anatomy and physiology of the parts.

In considering the significance of symptoms, it must be remembered that injury to a nerve in any part of its tract before it enters the cranium, will give rise to the same or similar symptoms as injury to its intracranial tract before it decussates; but when nerves have communicated by anastomosis, injury to the extra-cranial part of one may produce, in addition to the symptoms referable to that nerve, others which show that the nerve with which it anastomoses is injured. Such cases may render the diagnosis somewhat difficult, especially in cases of pressure on nerves in the cranial foramina; but if it is borne in mind that the injury is much more uniformly limited to the course of one or two nerves, and the rest of the system is unaffected, that there are no symptoms of general nervous disturbance, as would arise from shock, and that the trouble is usually of slow growth, appearing gradually, such cases may usually be eliminated. Yet there are occasionally cases in which it is exceedingly difficult or impossible to decide satisfactorily concerning the nature and seat of the lesion. Cases of pressure upon nerves after leaving the brain substance and before entering their foramina, come properly under notice in this paper.

Brown-Séquard has shown that the sensitive fibres (except those of muscular sense) decussate in the cord soon after entering, while the motor fibres and the fibres for muscular sense decussate in the anterior pyramids. Then in lesion confined to one side, above the place of decussation of the anterior pyramids, there will be loss of sensation and motion, both on the side opposite the lesion in the trunk and limbs. In the face, the paralysis may be on the same side with the lesion or on the opposite side, according to the seat of the lesion.

Commencing with the study of the physiology of the lower portion of the tract to be considered, we shall find but few cases where there was traumatic injury of the medulla at the origin of the pneumogastric and spinal accessory, in which the patient lived long enough for observation of the symptoms. These two nerves and the portion of the medulla whence they arise are so essential to life, as they preside over the respiration and the circulation, that the shock of the injury, by its irritating influence, or the resulting paralysis, proves quickly fatal. However, the physiology of these parts explains phenomena which are seen in some diseased conditions.

The lower fibres of the spinal accessory supply in part the trapezius and the sternomastoid. When these fibres are injured, the action of these muscles, deprived of part of their nervous influence, becomes more feeble; hence the acts in which they are essential lose part of their force, as the act of coughing, sneezing, vomiting, forced respiration, great muscular exertion with the arms, as lifting heavy weights. Hence in such a case running becomes impossible, except for a short time, as it is not possible to fill the chest sufficiently to keep up the exertion.

The upper fibres, called the internal roots,

which are united with the pneumogastric nerve, furnish to that a portion of its motor fibres. These are supplied to the organs of speech and deglutition. In paralysis of this part of the spinal accessory, the muscles which close the glottis and approximate the vocal cords are paralyzed, and if both sides are affected the voice is lost.

The pharyngeal muscles, which assist in deglutition, are in part innervated by fibres from the spinal accessory; hence a part of their nervous influence is lost in lesion of that nerve, and hence there is delay in accomplishing the act of deglutition, and there is, therefore, more danger lest a portion of the food should enter the larynx.

Paralysis of the spinal accessory, in cases of glosso-laryngeal paralysis, will, then, explain some of the symptoms found in that affection—the slow and difficult deglutition, with occasionally choking, and the necessity of feeding on liquids or soft solids, or of dividing the food very minutely; also may be explained the loss or diminution of the power of the voice which is sometimes observed; not the inability to articulate certain letters, which depends on paralysis of the hypoglossal.

The pneumogastric is exclusively sensitive, and is the nerve through which, by reflex action, many of the acts and functions of important organs are accomplished. It is also essential to the continuance of respiration and of the heart's action. Though the pneumogastric of one side may be sufficient to sustain the reactions necessary for the continuance of life, lesion of both would prove fatal.

The hypoglossal, though in some animals having a posterior sensitive filament furnished with a ganglion, is generally in man exclusively motor. Lesion at its origin produces only motor paralysis of the tongue. Hereby is explained another of the symptoms found in glosso-laryngeal paralysis—the difficulty of moving food in the mouth, the flow of saliva from between the lips, the difficulty or impossibility of pronouncing certain letters, requiring the application of the tongue to the palate. If a portion of the fifth and seventh nerves be affected at the same time, there may be also regurgitation of food through the nostrils from paralysis of the tensor palati, and inability to use the orbicularis oris. It will be easy, therefore, to explain also the differences in the symptoms in this disease in different cases, or in the same case at different periods, as the extent of central lesion varies, and one or more nuclei of cells is implicated.

In cases of one-sided lesion before the hypoglossal has decussated there will be paralysis of the tongue on the side opposite to the side on which the paralysis occurs in the limbs. The tongue will then be inclined to the side on which the limbs are not paralyzed when it is protruded. If there is no other symptom of paralysis in the face, except the protrusion of the tongue to one side, it follows that the lesion cannot be higher than the origin of the hypoglossal. As, however, the fifth nerve sends down fibres through the medulla as low as the origin of the twelfth nerve, and as the facial also turns down after reaching the floor of the fourth ventricle, it is rarely that so uncomplicated a case as lesion of the hypoglossal without symptoms involving the others can be found.

When both hypoglossals are injured the tongue of course remains motionless in the mouth, or if the injury is only partial it can perhaps be partly protruded.

It has long been known that irritation of the floor of the fourth ventricle will cause diabetes. This fact in the physiology of that part of the medulla leads to the supposition that the lesion in the following case was central.

Case I.—*Paralysis of the Tongue, followed by Sloughing. Sugar in the Urine. Paralysis of Spinal Accessory.*—A gentleman, æt. 78, had been under treatment for what seemed to be a neuralgic affection in the occipital region. He suddenly lost the power of articulating, especially the lingual consonants; the labials and vowels he managed very well. There was no facial paralysis. The tongue could be protruded steadily, but slowly and only to a short distance beyond the teeth, inclining to the right. There was difficulty in swallowing both solids and liquids; the attempt to swallow solids seemed to agitate him. The act was performed with manifest effort, the face being distorted in the effort as it is when a person with a sore throat attempts to swallow. Still the throat was not sore, and there was nothing abnormal about the fauces. Pain extended from the nucha towards the occiput. He became weak and had a cough. He was unable to clear his throat of the mucus he coughed up; it had to be removed mechanically. The saliva ran from his mouth. Pulse from 98 to 100, weak and compressible. The right half of the tongue sloughed off.

His urine at the commencement of the attack was free from albumen. It gave evidence of the presence of sugar. [E. Ballard, *Medical Times and Gazette*, March 20, 1869, p. 296.]

There was here paralysis of the tongue on one side; but it seems from the difficulty in swallowing as though the muscles of deglutition were affected also, the spinal accessory; and the rapid pulse would rather favor the same supposition. The occurrence of diabetes also points to the medulla as the seat of lesion. A circumscribed congestion of the nucleus of the spinal accessory and hypoglossal, and perhaps of the pneumogastric on one side, would account for all the symptoms mentioned.

The glosso-pharyngeal is a nerve of special sense (taste) as well as of general sensation. Its injury would be betrayed by loss of taste in the posterior third of the tongue, and by loss of sensation there and in the pharynx. Probably this is but rarely tested. It has been said that bitter substances are more especially tasted by the posterior third of the tongue, rather than by the anterior portion.

The auditory nerve may be injured at its central origin, and then there is loss of hearing on the same side with the injury, if it is before the decussation of its fibres; or on the opposite side if it is after the decussation. Actually this symptom is not often mentioned except in connection with other more striking symptoms.

The seventh or facial nerve is a nerve of motion, most of the muscles of the face are innervated by it, and when one nerve is paralyzed the balance between the natural tonic contraction of the two sides is destroyed, and the face is pulled over to the healthy side. A spasm of the paralyzed side, which is sometimes seen, would complicate the case, and render diagnosis less easy, but unless the spasm is very strong it would be sufficient to tell the patient to move his mouth to one side and the other in order to decide on which side the paralysis really is. Also the spasm would probably pass away with the progress of the case.

The disfigurement of the face from this paralysis is so marked that it is noticed even by non-professional persons, and has been more frequently described than any others. When, however, both nerves are paralyzed, the affection might pass unnoticed, as the features are then in equilibrium. There is, then, entire want of control over the muscles, and the patient laughs and speaks without moving his muscles.

When one only of the facial nerves is affected before the decussation, the paralysis is on the same side with the injury, and opposite to the side on which the limbs are affected; hence arises the so-called "alternate paralysis." If this is found, and sensation remains in the face, which is not likely to be the case, and if the muscles of the eye have not lost their power of motion, it is certain that the injury is not above the lower border of the pons. The fifth nerve is usually also affected, and there is loss of sensation in the face on the same side with the loss of motion. But as the fibres of the fifth and seventh do not decussate at the same place, there may be some variation in the grouping of the symptoms; but if none of the nerves supplying the eyes are affected, the lesion must be at the lower part of the pons or upper part of the medulla, and if the tongue is paralyzed on the same side with the limbs the location of the injury is restricted within still narrower limits, between the decussation of the twelfth and the border of the pons.

Brown-Séquard shows by comparing cases that the motor fibres from the limbs and body pass up the anterior part of the pons chiefly, and the sensory fibres pass up through the centre of the pons. If this is borne in mind, the seat of the lesion may be still more narrowly marked out.

The following is a summary of one of the cases from which he draws this conclusion. It is also of interest for our present purpose, as the seventh nerve was affected without the participation of the fifth, and the twelfth was affected after its decussation; also the lesion was well defined.

Case II.—*Paralysis of Motion in Limbs on left and Face on right; Hyperæsthesia in left Limbs; Preservation of Sensation everywhere; Tongue Paralyzed on the left; finally Rigidity of Paralyzed Limbs. Clot in right Side of Pons near Anterior Surface.*—On March 18, 1856, C. entered the Riboisière. He had previously had two attacks of right hemiplegia without loss of consciousness. On the morning of the 18th of March he arose as usual, and while preparing to go out fell, paralyzed on the left, without loss of consciousness.

When seen by M. Senac in the evening, the skin was warm and moist on the trunk and face, cold on the limbs. The conjunctivæ were injected, the pupils largely and equally dilated. The pulse was 90, small

and irregular. There was complete paralysis of motion in the left arm and leg. The face was drawn to the left, paralyzed on the right; the motion of the lower lip was free; the tongue was easily protruded, but inclined to the left. He spoke very indistinctly. Sensibility was perfect over the whole body without exception. There was no pain in the head or the paralyzed parts. Respiration was slow and noisy. Deglutition was difficult; there was no vomiting. Subsequently there were pains in the paralyzed limbs, and they afterwards became spasmodically contracted.

At the *post-mortem* examination there was found a clot in the pons extending into the middle cerebellar peduncle on the right side; it had the size of an almond; in front it was separated from the anterior surface only by a thin layer of transverse fibres; behind and above it had destroyed the nervous tissue to the level of the fibres which are the continuation in the pons, of the anterior pyramids of the medulla. The column on the right side was itself deeply excavated and destroyed. The clot seemed to have destroyed the nervous fibres in the pons; but to have only separated those of the middle peduncle from each other.—(Senac in *Gaz. Hebd. de Med.*, vol. 3, 1856, No. 46, quoted by B. S. in *Journal de Physiol. de l'Homme et des Animaux*, vol. 1, 1858, p. 756.)

There is one symptom in relation to the eye not yet mentioned. In cases of injury to the cord in the cervical region it is found that the pupillary fibres of the sympathetic are involved, and also there is increase of temperature in the face and limbs on the same side with the injury. The same phenomena are found in many cases of injury to the lower part of the pons and the upper part of the medulla. The pupil is contracted on the side of the injury. In no case have I been able to trace these fibres of the sympathetic higher than the middle or upper third of the pons. The vaso-motor fibres which regulate the contraction of the bloodvessels, decussate and are found in the hemispheres.

The symptoms in the following case are such as are usually found, though it is not clear whether there was anæsthesia on the side of the face which was paralyzed.

Case III.—*Alternate Paralysis. Clot in Pons.*—A woman, æt. 34, fell down. On admission to hospital she had right hemiplegia with anæsthesia of the paralyzed parts. There was paralysis of the left side of the face. The right eye could be closed; the will was powerless over the left eye. Reflex action in the paralyzed lower extremities was readily excited. The circulation was feeble. Tongue soon became dried and furred. Consciousness was maintained and intelligence till two or three hours before death, five days after the attack.

A clot the size of a filbert was found in the pons; it had a jagged, shreddy, slightly soft boundary. Section in the mesian line passed nearly through the centre of the clot which had ruptured into the fourth ventricle.—(*Trans. Path. Soc.*, vol. 4, p. 28.)

When the fifth nerve is affected, there is loss of sensation in the face and parts supplied by its sensitive fibres, and loss of power in the muscles of mastication, so that the bite is not so forcible. (This last symptom is not often noticed.) Certain lesions of nutrition have been noticed when section of the fifth has been performed in animals, as opacity and finally ulceration of the cornea, disturbance of nutrition resulting in ulceration of the mucous membrane of the nose and mouth. The testimony in regard to the occurrence of these lesions of nutrition is so conflicting that it is not easy to decide in regard to its value. It is not the present purpose, however, to reconcile these differences, but only to state facts in physiology which have a bearing upon diagnosis; and it is certain that under some conditions, after section of the fifth nerve, before it swells into the Gasserian ganglion, there follows an opacity of the cornea and of the other transparent structures of the eye, ending in ulceration of the cornea and perforation. There is also ulceration found on the above-mentioned mucous surfaces. With this disturbance of the nutrition there is loss of sight and of smell. There would probably be no necessity for such lesion to confirm a diagnosis, but if it should occur, the above fact would explain the occurrence. I have seen the records of several cases in which it occurred.

The fifth nerve also furnishes the sense of taste to the anterior two thirds of the tongue.

The chorda tympani, which influences the secretion of the submaxillary gland, is derived from the seventh.

The fifth may be paralyzed on the same side as the lesion, opposite to the side of paralysis of the limbs, and the seventh may be entirely unaffected, in which case the lesion is confined to a small portion of the upper part of the pons, through which the fifth nerve runs, or it may be implicated

outside the pons by pressure of a tumor.

The following case is an example where the fifth nerve was the only cranial nerve affected.

Case IV.—*Convulsions in left Limbs. Pain on right side of Face. Paralysis of Motion in left Limbs; of Sensation in right side of Face. No loss of Motion in Face. Tumors in right half of Pons.*—A boy, aged 7, affected with chronic hydrocephalus and tuberculosis, was attacked, six months before death, with convulsions in left arm and leg, pain in right side of face, with vertigo; later, motor paralysis in the limbs of the left side, anæsthesia in the right half of the face. Consciousness was not affected. The pupils were contracted, especially the left. Paroxysms of general shaking occurred. Four weeks before death, there was rigid contraction of the paralyzed limbs. Death occurred, with symptoms of tubercular meningitis. There was no facial paralysis of motion.

At the autopsy were found numerous tubercular granulations in the pia mater along the fissure of Silvius. On the upper surface of the cerebellum were many granulations. The right half of the pons was larger than the left. A transverse incision between the roots of the fifth nerve disclosed a round tubercle half an inch in diameter, situated at the lower or anterior portion of the right half of the pons, commencing about a line from the lower periphery, near the origin of the right fifth nerve. The nerve-substance was softened around the tumor from half a line to a line towards the middle line, but did not quite reach the centre. The fibres of the fifth nerve were thinner on the right side than on the left, and contained much fat and granules.—(H. Weber, *Med.-Chir. Trans.*, vol. 44, p. 157.)

When the sixth nerve is affected there will be internal strabismus on the same side, if injured before reaching the place of decussation. After decussation, however, there may not be strabismus, as probably the third nerve would be affected also, and the eye would be immovable. I remember no case where the sixth was affected on one side and the third on the other, though such a case is, perhaps, possible. Either the sixth alone is affected, or the third alone, or both are affected on the same side in those cases which I have noticed.

If the fourth nerve or its origin is affected, there is inability to rotate the eye from outwards, upwards and inwards. Paralysis of this nerve is seldom recognized.

In the following case several nerves were affected on the same side. Where such is the case, the diagnosis of pressure may be made with some certainty, for we have seen already that the hypoglossal crosses soon after entering the medulla, and probably the spinal accessory does also.

Case V.—*Loss of Power in right Limbs. Paralysis of left Fifth, Sixth, Seventh, Ninth, Eleventh and Twelfth Nerves; Diminution of Sensation in right Limbs; Tumor on left Side of Pons Pressing on Nerves.*—R. M., aged 6 years 7 months, fell and struck his head violently on the ground, receiving a cut over the right frontal eminence. He had never had fits, had always been healthy. Headache was felt subsequently and persisted. In taking food he began to use the left hand, and began to drag the right leg, and to allow his head to fall over to the right side. The power of the right side continued to decrease. He did not vomit. When admitted to the hospital there was no tenderness over the frontal bone. He generally sat up with his head leaning forward, or remained semi-recumbent. When his head was raised it fell back, which seemed to cause pain. There was no strabismus, the motions of both eyes were equal and regular. The left eye could be fully opened, but could not be so firmly or completely closed as natural. Both pupils were equally dilated, and contracted readily under light. There was complete paresis of right arm and leg, and sensation of the right side was a little impaired. There was paralysis of the left side of the face. Sensation of the left side of the face was considerably impaired. The left conjunctiva was almost completely insensible. The tongue was not protruded beyond the teeth. Intelligence seemed impaired, but he had lost the power of speech.

A few days before death a slight convergent squint with the left eye was noticed; it could not be turned outwards.

There was no reflex action in the right arm, but on pinching the right toe it was withdrawn.

Post mortem.—A lobulated tumor was found growing from the left side of the lower surface of the pons Varolii and from the left side of the medulla oblongata. The largest lobe of the tumor, of the shape of a large almond, and measuring 1¼ inch in length by ¾ inch in breadth, was placed obliquely; its apex reached to the basilar artery about the point of junction of the posterior with the two anterior thirds of the pons, and it extended backwards to the cerebellum; it

lay in a depression in the left side of the pons (which was much compressed) on the crus cerebelli and on the anterior part of the left lobe of the cerebellum. The remainder of the tumor, more irregular in form, consisting of several small lobules, grew from the back of the pons and from the upper part of the medulla oblongata. The medulla was somewhat twisted, the left side being pushed back and the right side being tilted a little forwards. The pons was larger and broader than natural, as was also the medulla oblongata, evidently in consequence of a portion of the tumor occupying the interior. On the right the nerves were not affected. On the left the first, second, third and fourth were not interfered with. The fifth was compressed between the tumor and crus cerebelli and much flattened; the sixth was concealed at its origin, lying between the tumor and pons; the seventh and eighth were compressed; some of the upper roots of the ninth were compressed.

In this account the nerves are evidently divided into nine pairs instead of twelve. The paralysis of the left spinal accessory is seen in the falling of the head to the right, owing to the superior power of the sterno-mastoid and trapezius on that side, and also in the loss of speech. The impairment of the hypoglossal was seen in the inability to protrude the tongue beyond the teeth, and perhaps both nerves were involved. The sixth nerve was not compressed till shortly before death.

When the seat of lesion is so far forward as to involve the third nerve, or even before that, when only the anterior part of the pons is affected, the facial paralysis will be on the same side with that of the limbs. If there is such a paralysis and the third nerve is not affected, either the lesion is in the crus cerebri outside of the tract of the third nerve, or it is in the anterior part of the pons above the decussation of both the seventh and fifth.

As the third nerve supplies not only most of the muscles of the eye and the levator palpebræ, but also the constricting muscles of the iris, when it is injured alone, there will be external strabismus and ptosis, and the pupil will be widely dilated. If the sixth nerve is also affected the fourth would probably not escape and the eye would remain fixed; there would be ptosis and dilated pupil. Differences in the size of the pupils may occur in connection with various lesions not here mentioned. In such cases the alteration may be due to reflex action or to implication of the optic nerves or centres. Other symptoms will then probably assist to a correct diagnosis.

The following case is one in which the lesion was in the course of the third nerve in the crus; it is one of the most valuable as showing how accurate a diagnosis may be made in some cases, especially if all the important symptoms are noted.

Case VI.—*Loss of Consciousness; Paralysis of Third Nerve on left; of the right side of Face and Body; Sensation diminished on right; Pupils dilated; Temperature elevated on right; Clot in left Crus Cerebri.*—C. L., æt. 52, felt giddy, and, on trying to walk, fell on the right side. He seemed unconscious and unable to speak, but soon recovered and spoke distinctly.

There was complete paralysis of the right side from the face to the toes, ptosis of the left upper eyelid and squinting. The left eye could not be moved, except outwards and round its own axis from outwards upwards, but not downwards. There was, on the left side, paralysis of the third nerve, but not of the fourth and sixth. Both pupils were rather wide; the left, however, much wider than the right. Both contracted imperfectly under the influence of light; the left much more so than the right.

There was diminished sensibility on the right. The paralyzed limbs seemed warmer to the patient, but to the hand there was no difference between the right and left sides. There was obstinate constipation. Micturition was unaffected.

Three days later, it was reported that there was scarcely any improvement. The temperature (by thermometer) was found to be 0.5° C. (0.9° F.), higher on the right than on the left in the axilla and in the bend of the elbow. The left pupil was about three times as wide as the right. The diameter of the latter was normal, or even slightly narrower than usual; the contraction of the left pupil was less perfect than that of the right. He improved somewhat, especially in regard to sensation, and the temperature became equal in both sides. He then had an attack of pleuro-pneumonia, and died.

Post mortem, thirty-four hours after death. The cranium, dura mater and arachnoid membranes were normal. The subarachnoid serosity was slightly increased in quantity; it occupied the intergyral spaces, and scarcely raised the arachnoid from the surface of the convolutions. The pia mater contained a moderate quantity of this fluid

in its meshes, and was easily separated from the brain.

In examining the base of the brain, the basilar artery was found to be rather rigid and to contain several atheromatous spots; and a similar condition was met with in the cerebral portion of the internal carotid, and also in the middle and posterior cerebral arteries of the left side.

The left crus cerebri looked slightly fuller than the right, the color being, however, scarcely different; the left third nerve was just perceptibly pushed towards the right. In making a horizontal section through the centre of the lower part of the crus, an oblong clot of blood was discovered in its internal half, which was about ·6 inch long, about ·25 inch broad and almost as deep; it was situated very close to the internal and inferior surface, being separated from it by only a thin layer of nerve-substance; its commencement was immediately in front of the pons. The blood was rather dark, and less fluid than a newly formed clot. The surrounding tissue was tinged yellow to the depth of about one fifteenth of an inch, and more dense than the remainder of the substance of the crus. The third nerve of the two sides looked alike. Both optic nerves looked natural.

Under the microscope, the left third nerve contained many oil globules, granules and granular corpuscles; the nerve-fibres were scanty and broken down.—(H. Weber, *Trans. Med.-Chir. Society*, vol. 4, 1863, p. 122.)

It may be worth while to notice that the sensation was less impaired than motion, showing that the motor and sensory fibres are separated from each other in their passage through the crus cerebri, the motor fibres lying more to the inner and anterior or inferior side. It will be noticed, too, that the caloric fibres decussate and pass through the left crus cerebri for the right limbs.

It will be well to notice one or two sources of error in diagnosis. One is to be found in the fact that pressure or irritation exerted on the middle crus cerebelli, or the insertion of the trigeminal nerve, gives rise to paralysis on the same side with the tumor. Brown-Séquard first pointed this out, and offered the explanation that the paralysis is produced in such cases by a reflex influence. It can be exerted only while the nerve fibres are intact; when disorganization takes place the paralysis ceases, or it may be transferred to the opposite side. He also states that the cerebellum can be the starting point of such a paralysis.

A case of this nature is given by Dr. Brown-Séquard in his *Journal de la Physiologie*, vol. i. p. 531. He says also he has found thirteen other cases of this kind of paralysis recorded. He does not state clearly in what way it may be diagnosed during life. He mentions, however, that in all the cases the paralysis is incomplete, as is found in cases of reflex paralysis arising from disease in other organs; there was anæsthesia in only one case, and there were frequent fits of vertigo. The fact mentioned above, that when the destruction of the peduncle is accomplished the direct paralysis has disappeared or has been replaced by paralysis of the opposite side, would also assist in the diagnosis at a later stage. Another means of diagnosis may be found, perhaps, when the eyesight is affected, which may also occur by reflex influence from the same parts, and sometimes the sense of odor and hearing is lost, while there are no well-marked symptoms, other than these, to show that the lesion is in front of the pons. Also convulsions are more frequent when the lesion is in these parts.

The following case illustrates this species of paralysis.

Case VII.—*Paralysis of left Side of Face and of left Limbs; Loss of Eyesight; Intelligence Preserved; no Loss of Speech; Convulsive Fits and Death; Aneurism Pressing on middle Cerebellar Peduncle and Fifth Nerve.*—Mrs. S., æt. 46, had always enjoyed good health till 1848, then she had pain at the front and vertex of her head, with dimness of sight which was worse on stooping; the pain was referred to the back of the eyes. Occasionally she would lose sight for a few minutes, the defect of vision "beginning at upper part of the eyes," the upper part of any object becoming invisible while the lower part was still seen. Both eyes seemed the same. She was also subject to feelings of stupidity and heaviness, which increased from the first. She had had several epileptic seizures. About one year from the commencement of her illness she became blind of both eyes.

In December, 1851, her mouth was drawn to the right side, the left side of the face and forehead being paralyzed. The pupils of both eyes were large, but equal in size, regular in outline, not influenced by light. There was no ptosis of either upper lid. There was great deafness in left ear; there had never been any discharge from the ear.

The tongue protruded straight. There was want of power in properly blowing the nose, and sense of smell was lost on the left side; taste was unaffected. She was very intelligent; there was no loss of speech. Memory of recent events was not good. There was loss of power, not complete, down whole left side, and great increase of sensibility of the skin covering the left side of the face and head. There was pain also in the back, but none in the abdomen. Micturition at all times was difficult.

In March, 1852, she perceived flashes in the right eye at times, and its pupil was larger than the left. There was a twitching of the left arm at times, which became painful when laid upon in bed, but the paresis was less and the hyperæsthesia of the head and face less.

April, there were various abnormal sensations and sounds in her head.

September, there were twitchings and contractions of the muscles at the right side of the neck and shoulder, and stiffness of the left side of the neck and lower jaw. September, 1856, a violent epileptic attack, the right side being tolerably quiet; the left arm was much convulsed, and left lids were continually winking. The right eye was kept open, and the pupils of both eyes were dilated; both eyeballs were rolling. She died immediately after.

At the *post mortem* there was found an aneurism of about the size of a small nutmeg connected with the left anterior cerebellar artery; it lay on the surface of the left middle crus cerebelli, and indented very slightly indeed the pons and the left lobe of the cerebellum. The apparent root of the fifth nerve was pressed on, and the seventh nerve was greatly implicated and stretched. The optic nerves, commissures and tracts were very dwindled and softened, and under the microscope with the seventh nerve showed degeneration.—(J. W. Ogle, *Med. Chir. Trans.*, vol. 42, p. 403.)

Again, difficulty in deciding about the seat of lesion may be found where there is an extensive destruction of cerebral substance; even if only one side is implicated, the shock may be sufficient to destroy consciousness and abolish the power of the will. Then if the lesion is very extensive the patient may die before recovering from the shock, and much less lesion may be found than was expected, or it may be very differently situated. If, however, the patient lives long enough the diagnosis can be corrected.

Or there may be a slight lesion in the hemispheres which only destroys a portion of the voluntary control over the muscles, and then the base of the brain or the cord may be suspected. In such cases a fuller observation of the symptoms and of the history of the case may help to a correct diagnosis. Many symptoms which should occur in injury to the base of the brain will be wanting.

The cases given above have all been those in which an autopsy confirmed the diagnosis; the purpose has been merely to illustrate the subject. Many more cases could have been related equally as applicable with those given, but this paper would have been too long. Doubtless, too, there are some things omitted which would be valuable and interesting, but the intention has been to give all that is really necessary for forming a correct diagnosis.

Medical and Surgical Journal.

Boston: Thursday, September 9, 1869.

AMERICAN vs. EUROPEAN MEDICAL SCIENCE.

Some little time since the *Medical Record* gave an analysis of the relation of American to European Medical Science—to the disadvantage of the former. In the issue of that Journal for June 15th, Prof. S. D. Gross, of Philadelphia, replies, while the editor rejoins in the leading article. Some of the points under discussion challenge attention, particularly as the debate has attracted notice abroad, where it is liable to be put to a bad use by those who like to ridicule and inveigh against matters American. It has, however, we desire to say, been taken in hand by the *London Medical Times and Gazette*, in a most courteous and even kindly spirit, and been treated by that invaluable Journal in a remarkably discriminating manner. The discussion between the *Record* and Prof. Gross is also conducted in terms of mutual respect and good will. Its purport may be learned from the editorial rejoinder, which first deals with the points of agreement, and then takes up those upon which there is difference of opinion. We make some quotations.

"We are happy to know," says the *Record*, "that in many of the essential features

of our editorial, Prof. Gross and ourselves entirely agree, and that we can endorse many of his statements in stronger language than he has seen fit to use, and can sustain them by a larger array of facts than he has taken the pains to present.

"*We agree that the profession in America has been inclined to discourage rather than encourage original thought among its members.* In the plain language of Prof. Gross, we are "toadies." In science, we ask what says the *Lancet?* just as in politics, we ask what says the *London Times?* The leading and most successful men in the profession of America to-day, certainly in all our large cities, are not our most original thinkers, but our *heaviest importers from Europe.*

"Again we repeat that, until quite recently, no physician in this country could advance a radically original thought in science without risking, not only his reputation, but even his comfort. Even now that spirit still lingers. Even now the reformers of American Medical Science are met by the stunning question—*What does Europe say?* Even now, many of our leading writers dare not form or express a favorable opinion of an *original* American work, until the key-note of criticism has come to us from beyond the sea.

"Such gross timidity and prejudice, on the part of our profession, would make us tremble for the cause of science, were it not for the fact that we see on every hand sure evidences of a growing liberality.

"In the severe strictures of the editorial to which Prof. Gross here replies, we made no invidious distinctions between different cities, or between the city and the country. If we had published the names of the persons to whom we referred, it would have been seen that, not only Philadelphia, but the city and State of New York, and other portions of the country, were held guilty. No longer ago than 1860, there was published a pamphlet filled with maledictions of the American reviver of *external version*, and signed by a large number of the most prominent obstetricians of the country, some of whom have passed away, but most of whom are yet living, which, if it had been exhumed from the ruins of the Inquisition, would have made our blood run cold with horror.

"When Prof. Thomas read some portion of it to his class, in the College of Physicians and Surgeons, it sounded like the voice of the middle ages. Whoever desires to know why America has given so few original thinkers to medical science, let him read that pamphlet. Let him compare it with the persecutions of Galileo, and the ravings of the monks of Salamanca against the future discoverer of America. * * * *

"*We agree that the standard of professional scholarship must be raised.*

"On this subject we propose to cry aloud and spare not, until we see evidences of a radical change. The need for this reform is far greater than even Prof. Gross desires to allow. On this reform in our medical education we base our only hope for the future of science in America. The number of physicians among us who are ignorant, not only of ancient and foreign languages, but also of their own, who are ignorant of the great, broad *principles* of medical science, who are uncultured and mentally indolent, is simply appalling. If, as Prof. Gross says, the number of faithful, intelligent workers in the profession is legion, the number of stupid, ignorant drones is *many* legions."

To this combined declaration we say Amen! Stop it! we cry. Stop this manufacture of cheap doctors—of doctors, we mean, with diplomas cheaply earned in point of scientific preparation. We care not how low the lecture fees may be, or if medical instruction be made gratuitous; but would that all true physicians in every State would rise as one man and crush the authority of the term serving and venal to send out incompetent persons to practise an art which is as powerful for evil as for good! If all accounts be true, the parchments on which some diplomas are written should, we had almost said, be written in blood. To the list of the causes which have brought about the present inundation of patent medicines should be added the incompetency or the doubtful competency of some so-called medical men. People in remote districts, it is said, are shy of trusting the doctor who has given no other proof of his claim to confidence than his title, not because they require him to be a Louis or an Oppolzer, but because they are afraid to let him deal out to them drugs which may kill as well as heal. If the restrictions which are imposed in this State have made us suffer less from the evil in question than some other regions, our reputation yet feels to a certain extent the detriment to the general standing of the Profession which is wrought upon it elsewhere. Our present standard, we

would say, is none too high for most regions, and would bear to be raised for this. The best method of breaking down charlatanism of any and all kinds would be not by direct assaults; but by showing a better way—by keeping ourselves more strictly than ever a close corporation—a *closed* corporation to all who could not prove their right to enter in.

We coincide also with the *Record* in accepting the next two propositions of Professor Gross.

"3. *We agree that, in mechanical dexterity, inventive genius, and practical tact, the Americans are, on the whole, superior to the Europeans.*

"We think that Prof. Gross even underrates America in this respect. We hold that surgical diseases of all kinds are as well, or better, treated in America than in Europe, and that, in a number of surgical conditions, such as deformities of various kinds, we are successful when the Europeans utterly fail.

"4. *We agree that certain kinds of learning do not necessarily make one a good practitioner of medicine.*

"It is possible to have 'learned fools' in medicine as in other departments. The physician needs all possible learning, but it must be of the *right kind*. Greek and Latin and mathematics are only a part, and by no means the principal part of learning."

The *Record* now proceeds to take up the points on which it differs from Prof. Gross. It says:—

"We beg leave to oppose the following statements that are offered in the accompanying letter, and which contain the gist of his criticisms on our editorial.

"1. *That 'in refinement, in general culture, in force of intellect,' physicians have not their superiors in either of the other professions.*

"This statement is so absolutely erroneous, and can be so overwhelmingly opposed both by special facts and by general observation, that we hardly know where or how to begin to reply to it. If Prof. Gross had stated that physicians were the wealthiest class in society, he could not have been further from the truth. We are surprised beyond expression that Prof. Gross, with his large experience and information, is unconscious of the great fact that, in our country especially, the best brains are *to be found among the clergy*. The American pulpit is, beyond all comparison, the most eloquent pulpit of the world. This nation was founded on religious faith. Even now it has not forgotten its origin, and still gives its first fruits to the church. But this fact of the superiority of the clergy is not peculiar to America. In England, also, much of the best talent and education are monopolized by the clergy. The historian Froude, in his magnificent inaugural address, recently delivered, complains almost bitterly that Oxford University is too exclusively a preparatory school for clergymen. * * *

"The number of men in our country today who, after taking the highest scholastic or literary honors of any of our leading colleges, have entered the profession of medicine, could be counted on one's fingers. On the other hand, *hundreds of our clergymen, lawyers*, and teachers, graduate with the highest of college honors in writing and in scholarship.

"There is nothing mysterious in this fact. The explanation is as clear as the noonday. Most of our colleges were originally founded as schools for clergymen—nearly all their officers and professors are clergymen. A large part of their endowments were given with the expressed desire that they should aid in the education of clergymen. Very many of our young men enter college under this specific covenant, that they will enter no profession but the ministry.

"The clergy are literary, are honored and influential, and therefore those who love literature, honor and influence naturally gravitate toward that profession.

"The reason why so many graduates enter the law is equally clear. In this country, every man has a chance for political preferment. The law is the avenue that leads to politics. Therefore, young men who are ambitious of political honor, almost uniformly study law.

"Of late years, *money* has become a power in our colleges, and some of the best cultured graduates go into business.

"As long ago as the last century Edmund Burke declared, in the British Parliament, in no other country was law studied so much as in America.

"The fact is, that our college students, during their four years' course, live and move in an atmosphere of theology, law, or of business, and rarely think or hear of the profession of medicine.

"It is the impression even among educated men that physicians do not need a liberal education, are indeed better off without it. One of the firmest friends of liberal education that we ever knew once told a young man who was preparing for college

that "his four years in the University would be wasted if he intended to study medicine." One of the most promising of our New York surgeons, who died a few years ago, declared that all his life he had repented that he had been dissuaded from taking a collegiate course by a college graduate himself, who told him that *a physician did not need a liberal education.*"

We do not think the comparative numbers of college graduates who enter the different professions and callings of much account in this connection, because those numbers are regulated mostly by the law of supply and demand. At all events, the medical profession is notoriously overcrowded, only a minority attaining to success. But, on the question of the respective *quality* of the minds taking the different paths, we submit that it is difficult to make a categorical statement. Much room must be left for qualification. We think, however, the *Record* is mistaken in declaring that "the best brains are to be found among the clergy." Judging *a priori* this would seem to be a strange result, since the chief prizes of life in this country, so far as honors are concerned, fall to the legal profession and to politicians, just as those of wealth and display fall to mercantile pursuits. And, in point of fact, we have seen some of our most brilliant orators transferred from the pulpit to the forum. (Agassiz, said Dr. Holmes, if bred in this country, would have been lost to science, and have become a senator.) Again, the Professor, in striking the balance sheet between the clerical and the medical professions in Massachusetts, attempts to show that the entries to our credit preponderate over those to our debit. If the comparison under consideration be difficult to estimate, it is partly owing to the fact that a peculiar *combination* of qualifications is necessary to success in the medical profession: physical endurance; a sound *morale*; judgment blended with sagacity—or, the judicial cast of mind.

The third proposition of Prof. Gross is "that a good surgeon must necessarily be a good physician." The first paragraph of the *Record's* reply to this is as follows—

"This question must be argued, not by special cases, but on broad general principles. We hold that a man may be a skilful, judicious, comprehensive surgeon, and yet be no physician at all. The converse of the proposition, that a man may be a skilful physician without being in any sense a surgeon, has always been admitted, and is practically demonstrated every day, in town and in country. The truth is, that surgery requires not only a different but an *opposite* cast of mind from medicine, and between the two a gulf as wide as the Atlantic intervenes. In making this statement we reprove neither physicians nor surgeons."

"We regret," says our *confrère*—"we cannot tell how deeply—that Prof. Gross has in this letter given aid and comfort to the despisers of our profession—already too numerous in America—by even implying that the chief duty of the practitioner of medicine is to be a *nurse*. The idea that prevails through the leading classes of American society that medicine is a "*useful*" profession—that we *need* doctors to prescribe pills and prepare powders, to deliver babies and pat children on the head—what any old granny can often do even better than they—and to collect their bills for these services some time the next year. If this idea is not wrong, nothing is wrong. This low ideal of our profession is absolutely monstrous, and in the name of science and human nature we enter our protest against it. The ideal for which our profession should aim is not only to give pills to patients, but to give law to progress and to reform; not only to feel the pulse of the sick, but to feel the pulse of society; to originate thought, to investigate, to experiment, to perfect and popularize science; and we hope that those who propose the study of medicine with any lower ideal than this will at once separate from us by an interval so long that in comparison the East and West will be cohesion.

"Again we say that a physician should and must be a scholar. By scholarship we *mean familiarity with the thoughts and acts of the world.* Physicians are successful usually in proportion to the *right kind* of scholarship which they have acquired. A man who is a good linguist or mathematician, and yet is ignorant of medical knowledge, is not a medical scholar, and cannot, of course, be a successful practitioner."

Under the fourth head the editor of the *Record* makes the following remarks:—

"The late Theodore Parker, in one of his suggestive lectures that won respect even from those who hated his theology, divided

ability into two kinds—the *organizing* and the *executive*—and stated that the organizing ability was superior to and of a higher order than the executive. Just here is the superiority of European physicians over those of America most readily apparent. We are superior to them in *executive* talent, in fact, in the mere *practice* of medicine, and perhaps also, in the average, obtain, as Prof. Gross claims, about as good results. This is, however, a matter of opinion, and cannot be well determined by statistics.

"But in *organizing* ability—in thought, in elaborating, systematizing power, and in power and originality of medical leadership, Europe is far ahead of America."

The preceding passage is the one we alluded to in a late issue in a few words on the new philosophy of dislocation of the hip-joint.

The last formula is thus stated, "that the sentiments expressed in our last editorial will injure us in the eyes of Europe." We conclude this notice by giving a portion of the reply without comment.

"We regret that Prof. Gross lends countenance to our national failing of conceit. Individuals, like nations, cannot create but must *earn* their reputations. In private intercourse unwarranted conceit always makes enemies and despisers; while genuine achievements, united with a dignified and independent self-confidence, always, in the long run, command respect, and by a law as sure as gravitation. Europe has despised America, not so much because of her youth and ignorance as because of her disagreeable over-estimate of her achievements.

"We would say to our brethren in Europe: We admit, gladly and without humiliation, that you with your concentrated population, aided by government, fostered by wealth, and trained in schools which centuries have perfected, have accomplished more in organizing medical science in ten centuries than we of the same blood as yourselves, with our scattered population, opposed and hampered by stupid legislation, cramped by poverty and imperfectly educated, have accomplished in two centuries. We are not jealous of your superiority in this respect; rather, we rejoice with you and are proud of your success. But mindful of the saying of the great Confucius, 'What you know, to know that you know it, and what you do not know, to allow that you do not know it—that is knowledge,' we claim that in a mechanical genius, and a practical activity of mind, and all that makes executive ability, we have by transplanting to this new land become superior to our ancestors in the old world.

"But these achievements shall not content us. We aspire to and intend to reach the highest position among the *organizers* of science. Even now, our best and noblest men are pressing on with full force toward the mark of the prize of our high calling. Our determination is, that the fires of scientific persecution that have so long been burning and smouldering in our midst, and from which you yourselves have not been wholly guiltless, shall be extinguished at once and forever; that among us less honor shall be given to *importers* and greater to *originators*; that specialism shall be feared less and ignorance more; that in our societies and medical bodies less time and discussion shall be given to *ethics* and more to *science*; that, in short, we shall pay less of the tithe of mint, anise and cummin, and more of the weightier matters of the law. * * *

"In concluding these remarks, we desire again to thank Prof. Gross for his excellent letter, which, with all its errors, we commend as a model of courtesy. If all our medical men were like him in ability, in culture, and in character; if, even in each of all our large capitals, ten men could be found equally good and true, then those severe words of ours would never have been written. If all, or even a majority, of controversial letters had been as kindly as this, much of the acerbity of controversy in the past would never have been known."

RESTRAINT NEUROSES.—From an article on this subject by Roberts Bartholow, M.D., published in the *Quarterly Journal of Psychological Medicine*, New York, for July, 1869, we make the following extract:—

This term, "restraint neuroses," is applied to designate a class of affections which consist essentially in functional derangement of the inhibitor or regulator nerves. Although inhibitor or regulator nerves are generally admitted to exist, there are very competent observers who refuse to accept this view of the office of these nerves. There is a *strong probability*, it may be stated with confidence, that four systems of inhibitory nerves exist:—

The cardiac.
The respiratory.
The intestinal.
Those controlling reflex movements.

The observations which I now propose to narrate belong to the restraint neuroses of the cardiac and respiratory symptoms [systems] of the inhibitory nerves.

Before giving the cases, it may be desirable to state, in a condensed way, the two views explanatory of those actions known as restraint neuroses. I may take a neurosis of the heart as a type. When a strong faradaic current is sent through the pneumogastric, an arrest of the heart-action takes place, in the diastole according to some, in the presystole according to others. When this nerve is divided, at first there is great hurry of the respiration, followed, however, by diminished movement of the lungs. These properties of the pneumogastric have originated the view that it is an "inhibitory or regulator nerve" of the heart. The action of atropia, as a paralyzer of the terminal filaments of the pneumogastric and as a stimulant to the ganglia of the sympathetic, supports this view. These actions of atropia have been experimentally demonstrated by Lemattre and Meuriot, especially the former.

The inhibitive action of the pneumogastric may be excited in two modes:—

By direct irritation.

By reflex action.

The most exaggerated illustration of the first is the stoppage of the heart's action by a galvanic current. Pain in a remote part may produce slowing of the heart's movements by an action which it is the fashion to call reflex. This occurs in certain forms of neuralgia. I have met cases—one of cervico-occipital neuralgia, especially—in which, when the paroxysms of pain came on, slow and feeble action of the heart was induced. Handfield Jones gives various instances of this kind, and remarks, with regard to angina pectoris, that he is much inclined to attribute this disorder to inhibitory action of the gastric nerves. This direct and reflex influence, causing a restraint neurosis of the heart through the agency of the pneumogastric, is a phenomenon of the nervous centre of animal life. Those who deny the existence of centres and nerves of inhibitory influence explain these phenomena in a different way. Thus we have the well-known "exhaustion theory" of Schiff. According to this view, a strong galvanic current simply "exhausts" the excitability of the pneumogastric. Cases occur, however, in which the inhibitive influence upon the cardiac movements seems to be produced through the agency of the sympathetic system. A violent blow upon the epigastrium may cause a sudden arrest of the heart's action—"the crushing-blow" experiment. In this case the irritation is most probably propagated through the solar plexus. As the motive power of the heart is derived from the sympathetic, it is not unreasonable to suppose that irritation of a distant part of this system may be reflected upon the heart. In fact, this has been experimentally proved. Mechanical irritation applied to the abdominal sympathetic has caused great feebleness of the heart's movements. The more generally accepted view, however, is, that the restraint neuroses of gastric or intestinal origin affect the heart by means of the pneumogastric, the terminal filaments of this nerve being the seat of irritation. It is very desirable, in a question of such obscurity, to have light thrown upon it, if possible, by clinical observation. I have happened to meet two cases which seem to me instructive from this point of view.

On the Medicinal Use of Phosphorus and its Compounds.—We take the following extracts from an article, with the above caption, by John C. Thorowgood, M.D., published in the *Practitioner* for July, 1869:

Since the discovery and isolation of the element phosphorus by Brandt, of Hamburgh, in 1669, it has become the practice with physicians in this and other countries occasionally to prescribe this substance as a remedy in cases where some special stimulant to the nervous centres has seemed to be required. Thus we find that phosphorus has been administered in cases attended with great prostration of the vital powers, as in the latter stages of typhus fever, also in such chronic diseases of the nervous system as epilepsy, paralysis, melancholia, amaurosis, &c., occurring in debilitated subjects; and there is good evidence to show that in many of these nervous affections the effect of phosphorus, properly administered, has been decidedly beneficial. * * *

The well-known fact that in cases where an unusual degree of wear and tear of the nervous system is being sustained it is common to find an excess of phosphatic matter excreted in the urine, while the individual becomes increasingly weak, nervous, and irritable, appears to show that exhaustion of nervous force is in some way connected with a rapid oxidation and excretion of phosphorus from the system.

Considering these points, we can see that there is reason in seeking to administer

phosphorus as an internal medicine where we have reason to suspect that the nutrition of nervous matter may be failing from a loss of its right proportion of this very essential ingredient.

We give phosphorus for its restorative action over weak nerves, just as we give iron to nourish and restore blood that is weak and poor from lack of this constituent. * * *

Solid phosphorus, given in as small a dose as 1½ grain, acts as a poison, death seeming to take place in a gradual and painless way, with perfect retention of consciousness. There may be some vomiting, and the substances ejected appear luminous in the dark, as also does the stomach itself after death, when cut open in a dark place; but it is rare to find any marked inflammation of this organ: in the case of a bird poisoned by eating several grains of phosphorus, I could find scarcely a trace of inflammation anywhere in the digestive tract. In a case recorded by Casper, where a dose of 3 grains of phosphorus proved fatal to a lady in twelve hours, the body after death presented the extraordinary phenomenon of luminous vapor issuing from each of its outlets.

Analysis of the various tissues of animals poisoned by phosphorus has demonstrated the presence of phosphoric acid in unusual amount: this arises from the oxidation of the phosphorus in the body. Phosphoric acid is also increased in the urine of those who have taken any preparation of phosphorus. The action of phosphorus as a poison appears not to be due to any direct action on the nervous system, but to its preventing the assimilation of oxygen by the constituents of the blood; by thus checking oxidation it may cause the fatty degeneration of the liver so often met with in those who have been poisoned by phosphorus, and which is doubtless connected with the symptoms of severe icterus often seen in the patients before death.

For medicinal use there are solutions of phosphorus in ether and also in almond oil. * * *

Another very useful preparation of phosphorus is a pill, made by melting finely-divided phosphorus with fat and then covering the pill with an impermeable coating.

Pills that I have seen and used, made by Messrs. Savory and Moore, contain $\frac{1}{10}$th of a grain of phosphorus in each pill. Both Dr. Radcliffe and Dr. Althaus speak favorably of the good effect of phosphorus, given thus in very small doses, as a valuable tonic in many chronic nervous maladies. * *

M. Tavignot, in France, has long been in the habit of using phosphorus in the form of a pill, containing $\frac{1}{10}$th of a grain, as a remedy in nervous, chlorotic and strumous affections. In some neurotic and paralytic affections of the muscles of the eyeball, and of the lachrymal nerve, M. Tavignot has used liniments of phosphorated oil with advantage; and, dropped into the eye, this oil is asserted after some month's use to have a solvent action on cataract. * * *

As a gradual tonic and restorer of failing nerve force I prefer the hypophosphite of soda or of lime to the potash salt, and either of these salts appears to me to answer all the purposes of pure phosphorus as an internal remedy, while at the same time they are more manageable and agreeable medicines. In cases of nervous depression and torpor, with at times shooting neuralgic pains; or, in other cases, numbness and deadness of the limbs, as from feeble circulation, the hypophosphites prove useful, and the lime or soda salt can be given according to the way in which the stomach may seem to bear the one better than the other. When anæmia is present, the citrate of iron can be added to the hypophosphite of soda, or else the syrup of the hypophosphite of iron, or of iron with quinine, can be employed; and either of these syrups will prove an active tonic, removing neuralgic pains, chest oppression, and languor of circulation in a very evident way. * * *

Immunity from Phthisis. By George F. Elliott, M.D., Hull.—*Apropos* of a recent reference in the pages of the Journal to Dr. McNab's pamphlet on this subject, permit me to say a few words. Among the possible agents in warding off phthisis from the inhabitants of the west coast of Scotland, Dr. Morgan (*Med.-Chir. Rev.*, vol. xxvi.) enumerates—out-of-door habits; nature of the diet; prevalence of ozone; distinction of race; and lastly, the use of peat for fuel. Dr. McNab, it seems, believes that the protective agent is the oxygen generated by a copious growth of algæ. You have already pointed out why this is an untenable theory. With the exception of the presence of peat-smoke, Dr. Morgan shows that all the conditions which he mentions exist in other places where phthisis is prevalent; and, therefore, that they have no special protective value. I wish to point out a fact which has apparently been overlooked by Drs. Morgan and McNab; viz., the great length of time that has elapsed since the absence of phthisis from those places where peat was used as fuel was first noticed. Two

centuries ago the celebrated Thomas Willis wrote as follows:—"Communis observatio est, regiones istas, sive in Angliâ sive in Belgio, ubi cespite ignes nutriuntur et odorem valde sulphureum spirant, Tabem rarius infestare; quinimo loca ista phthisi obnoxiis, aut ea laborantibus maxime salubria, et non raro sanativa existere" (*De Med Operat.*, sect. i. cap vi.). Though his explanation of the fact was wrong on chemical grounds, and though we may find it difficult to put forth a perfectly satisfactory theory of how peat-smoke acts, a consideration of the great antiquity of this observation, and of the physical characteristics of the two countries where it was acknowledged, enables us at once, I think, to eliminate all the other suggested protective influences from the question—What causes immunity from phthisis in the Hebrides? We cannot believe that in those days the people in the peat-burning districts of England and Belgium chanced to have a greater share of oxygen and ozone, or lived on a more oleaginous diet, or kept more out of doors, or enjoyed a more equable climate, than their neighbors who used other kinds of fuel; and we are thus, I think, compelled to confine ourselves to the solitary long recorded fact, that, where peat-smoke was, there phthisis was not prevalent. In fact, it seems to me that, *of all the conditions suggested as protective*, the presence of peat-smoke is the only one which is at all likely to have gone hand in hand with immunity from phthisis, in certain districts of England and Belgium, in the days of Willis, and to be doing so in the Hebrides to-day. But if I have endeavored to point out the obviousness of this fact, I am not, I confess, prepared with a conclusive explanation of it; nor, on the other hand, do I suggest that we have only to send our consumptive patients to a Highland bothie instead of to Hyères or Mentone. I think it probable that the peat-smoke has a protective effect in several ways; these have been already explained by Dr. Morgan in the article referred to, and I need not repeat them. Dr. McNab's arguments to show that no hygienic effect results from the use of peat-fuel, I consider far from conclusive, for reasons upon which I cannot enter here; moreover, my only wish is to aid, if I may, in the right solution of this interesting question, by pointing out the remarkable support given to Dr. Morgan's suggestions by this unnoticed testimony of Willis.—*British Medical Journal.*

Prof. J. E. Berard has recently deceased.

Dislocation of the Patella on its Vertical Axis successfully treated. By Carey Pearce Coombs, M.B., Lond.—E. H., aged 30, a strongly made country woman, was sitting on a heap of hay with her legs slightly bent, and resting on her heels. A young man came and set himself violently down on her extended legs, and caused her great pain in the left knee, where she felt something give way. When I saw her, an hour or two after the accident, the leg was kept straight, and the least attempt to bend the knee gave her pain. There was a prominent ridge running vertically in front of the knee-joint, produced by the outer edge of the patella, which might be felt under the skin, the bone being firmly fixed in the fossa between the condyles.

Flexion of the leg was of no use in attempting to reduce the dislocation, so I resorted to violent extension in this way:—She was on a mattress on the floor, and I knelt by her side on one knee, resting her left heel on my other knee. I then made strong pressure on the lower part of the thigh with one hand, while with the other I pulled the edge of the patella outwards, when the bone slipped at once into its place.

The case is recorded on account of the rarity of the accident and the failure of the method recommended for its cure. The crucial ligaments must have yielded to allow the leg to be extended beyond the straight line (if the expression be allowable), but they probably had been much strained in the accident. No swelling followed the injury, and on the third day the knee had so far recovered as to allow the patient to use it in walking.—*London Med. Times and Gazette.*

Trephining.—Baron Larrey, on presenting to the Académie des Sciences a copy of the memoir he has recently published in the *Mémoires de la Société de Chirurgie*, observes:—"The analysis of more than 160 cases of traumatic lesions of the head, a portion of which have occurred in my father's and my own practice, enables me to come to the following conclusion—viz., valuable as is the operation of trephining in the practice of Surgery, it still should be reserved for well-defined cases and precise indications, and not undertaken with precipitation and in doubtful conditions, under the penalty of aggravating the accidents and hastening a fatal termination, while the prompt and rational application of other therapeutical resources will, in the great majority of circumstances, second the mar-

vellous efforts of nature for the cure of the most redoubtable injuries. I may also remark, as I have done many times on other questions, that such treatment, which is essentially active, substituted for the removal of a portion of the cranium, constitutes in these cases true conservative Surgery (which is not to be confounded with expectation), to which I have devoted all my efforts during my career of thirty years."—*Union Médicale*, July 10.

Extracts from a paper on the Therapeutical Effects of Steam under high Pressure. By Wm. Bennett, M.D., Harrogate. * * * The whole inner surface of the right thigh, from a little above the knee to about three inches below Poupart's ligament, now presented an immense ulcerated suppurating surface, with deep excavations and sinuous passages extending through the thickness of the skin down to the fascia. The borders of these excavations were swollen, shining, and of an unhealthy appearance. The portions of skin not yet involved had a dark bluish appearance, the ulcerative process going on underneath so as to engage those portions of the hitherto healthy skin.

He had been under treatment for a long time, both in different hospitals and under different private practitioners; was put under all kinds of treatment, both constitutional and local, and from a small ulcerated spot at first it gradually reached its present extent, and now appeared as if there never had been any attempt at healing. * * *

The case began to improve a little; the general health seemed better, but the appearance of the ulcerated surface was little changed. What we gained by the soothing treatment of baths was lost by the increase of suppuration, and by the relaxation of the whole surface, and bandages could not be borne. It was evident I wanted a stimulant of such a nature as would increase the circulation of all the cutaneous vessels, allay the irritability of the exposed nerves by such an amount of heat and moisture as would not be followed by too great relaxation, and yet which would rouse the vitality of the part, and thereby set up a more healthy reparative process. I conceived that I possessed in the steam or vapor douche not only two of the properties which I required, but also when used under high pressure I knew I had the command of a very great quantity of electricity, not of very high tension, which, by proper management and regulation of the pressure, would give me a stimulant very different from any that had been before applied. Persevering steadily with the vapor douche, I had the gratification, in a very short time, of observing a great change in the appearance of the entire ulcerated surface. The whole limb became more comfortable to the patient; the suppuration was greatly diminished; the swollen borders of the ulcers were flattening down, and it was evident the process of absorption was going on rapidly. Suffice it to say, after a residence in the hospital of about two months, I had the pleasure of dismissing this patient, capable of moving about without suffering, freed from all discharge from this extensively diseased surface, and cicatrization going on rapidly; and, after a month's residence at home, he was able to take a situation as toll-keeper on one of the southern roads in this county. I lost sight of him for more than a year, when I heard he died of typhus fever.—*Medical Press and Circular*.

The Antidote.—The country around Pumpkin Creek, Georgia, is very sickly, and there is such a notorious prevalence of chills and fever in the district that it is the invariable custom to pass quinine pills with the dessert.—*Ibid.*

Transitory Blindness in Typhoid Fever.—The fourth recorded case of this affection is related by Tolmatschew, of Kasan, in the *Jahrbuch f. Kinderheilkunde*, 2 Heft, 1869. The patient, aged 12 years, was brought into hospital with symptoms of advanced typhoid fever—great weakness, high temperature and pulse, delirium alternating with soporosity, sordes on lips and tongue, involuntary discharge of liquid stools and of urine; no rose-spots. He was said to be in the fourth week of his sickness. On his sixth day in the hospital he had regained sufficient consciousness to remark that he had become blind, seeing nothing, and having but feeble perception of light. Seven days later, his sight had become almost normal, only rather weaker than formerly.

Ebert states that this affection lasts from twenty to sixty hours, or at most three days; here, however, it lasted at least seven days. The case also differs from others in two points: 1st, vision was not restored completely, at least not at the time of the patient's discharge, thirty days after admission; and, 2d, an eruption of herpes on both temples occurred, a few days after the partial restoration of vision. D. F. L.

Medical Miscellany.

HUMBOLDT CELEBRATION.—The Committee of Five appointed by the Boston Society of Natural History to prepare for the celebration of the Centennial Anniversary of the birth of Alexander von Humboldt, announce that the programme for this interesting occasion will include an Address by Prof. Agassiz and other appropriate exercises. The services will be held in the Music Hall on the 14th of September, at 3½, P.M. The proceeds, above expenses, will be devoted to the establishment of a "Humboldt Scholarship" at the Museum of Comparative Zoölogy, in Cambridge. Coöperation is earnestly solicited, to render this occasion worthy the illustrious name with which it is associated, and to secure its success as an educational movement. Prominent scientific and literary associations throughout New England will be invited to participate, and it is believed that this celebration will long be remembered in the annals of science. The price of tickets, with reserved seats, will be $2.00 each; other seats, $1.00 each. Orders for tickets, accompanied by the money, sent to Dr. Samuel Kneeland, Mass. Inst. of Technology, or Mr. Samuel H. Scudder, Boston Society of Natural History, will be at once answered by mail. A committee of influential citizens, chosen at a public meeting held for the purpose, and representing the various interests of the community, have consented to assist the Committee of the Society, and to any of these gentlemen donations may be sent.

GUM-DROPS IN SICKNESS OF PREGNANCY.—During the latter half of gestation, most women suffer from cardialgia. Some obtain relief from this distressing complaint by the use of alkalies, as bicarbonate of soda; and others from antacids, variously combined with bitters, &c. The vegetable and mineral acids are resorted to; bismuth and oxalate of cerium are tried. The whole routine is exhausted. Some give temporary relief; but at last all fail, and the patient is doomed to suffer to the bitter end. Under these circumstances, I can confidently recommend "gum-drops." This tormenting affection can be so ameliorated by their use as to make the condition of the sufferer more tolerable; and as the remedy is so palatable, there is no difficulty in continuing its use. They are also useful, as a palliative, in acid dyspepsia and heart-burn. The jujube-paste will probably do as well as the drops, which are made from the jujube-gum; but the latter form is the most convenient.—A. C. MATHESON, M.D., in *Transactions of the Medical Association of the State of Alabama.*

LEGACY TO THE PARIS FACULTY OF MEDICINE.—A retired Paris shopkeeper has left by his will 150,000 francs for the purpose of founding a Professorship of History of Medicine, or, in the event of the Faculty not approving of this destination, some other professorship. As, however, it is stated that the money is not sufficient to endow a chair (at least 200,000 francs being required for this purpose), and as the testator insists that M. Cusco, whose specialty is ophthalmology, shall be the first person to fill the post, it is doubtful whether the Faculty can accept the donation thus fettered.—*Union Médicale*, July 24.

CLAUDE BERNARD, THE PHYSIOLOGIST.—This celebrated physiologist has been called by Napoleon III. to the French Senate. He is now, besides Academician and Senator, Professor of General Physiology at the Museum, Professor of Experimental Medicine at the Collège de France, Annual President of the Académie des Sciences (l'Institut), Life President of the Société de Biologie, Member of the Academy of Medicine, Commander of the Legion of Honor. Twenty-five years ago, Claude Bernard was an apothecary's assistant in a country town.—*Med. Record.*

DR. LOUIS ELSBERG has been appointed Clinical Professor of Diseases of the Larynx, &c., in the Medical Department of the New York University.

MEDICAL DIARY OF THE WEEK.

MONDAY, 9, A.M., Massachusetts General Hospital, Med. Clinic. 9, A.M., City Hospital, Ophthalmic Clinic.
TUESDAY, 9, A.M., City Hospital, Medical Clinic, 10, A.M., Surgical Lecture. 9 to 11, A.M., Boston Dispensary. 9-11, A.M., Massachusetts Eye and Ear Infirmary.
WEDNESDAY, 10, A.M., Massachusetts General Hospital, Surgical Visit. 11 A.M., OPERATIONS.
THURSDAY, 9 A.M., Massachusetts General Hospital, Medical Clinic. 10, A.M., Surgical Lecture.
FRIDAY, 9, A.M., City Hospital, Ophthalmic Clinic; 10, A.M., Surgical Visit; 11, A.M., OPERATIONS. 9 to 11, A.M., Boston Dispensary.
SATURDAY, 10, A.M., Massachusetts General Hospital Surgical Visit; 11, A.M., OPERATIONS.

TO CORRESPONDENTS.—Communications accepted:—Watermelon vs. Diarrhœa, No. 3—Letter from Dr. Treadwell.

BOOKS AND PAMPHLETS RECEIVED.—The Science and Art of Surgery; being a Treatise on Surgical Injuries, Diseases and Operations. By John Eric Erichsen, Senior Surgeon to University College Hospital, London, &c. From the Fifth London Edition, with Additions by John Ashhurst, Jr., M.D., Philadelphia. Pp. 1228, and 630 Engravings on Wood. From the publisher, Henry C. Lea. For sale in Boston by James Campbell, 18 Tremont Street.—Surgery of the Cervix in connection with the Treatment of certain Uterine Diseases. By Thomas Addis Emmet, M.D., Surgeon-in-Chief of the New York State Woman's Hospital, &c. &c. Pp. 24.

DIED,—At Medway, 31st ult., Dr. James Hovey Sargent, 88, formerly Asst. Surg. U.S.A.

DEATHS IN BOSTON for the week ending September 4, 107. Males, 57—Females, 50.—Abscess, 1—accident, 4—apoplexy, 1—perforation of the bowels, 1—congestion of the brain, 2—disease of the brain, 2—burns, 1—cholera infantum, 20—consumption, 16—convulsions, 1—croup, 2—cyanosis, 1—debility, 1—diarrhœa, 5—diphtheria, 2—dropsy of the brain, 3—drowned, 2—dysentery, 3—erysipelas, 1—fever, 1—typhoid fever, 3—hemorrhage, 1—disease of the heart, 2—infantile disease, 1—intemperance, 1—disease of the kidneys, 1—disease of the liver, 2—inflammation of the lungs, 1—marasmus, 3—cerebro-spinal meningitis, 1—old age, 3—premature birth, 2—puerperal disease, 1—rheumatism, 1—disease of the spine, 1—unknown, 7—whooping cough, 6.

Under 5 years of age, 55—between 5 and 20 years, 5—between 20 and 40 years, 19—between 40 and 60 years, 15—above 60 years, 13. Born in the United States, 80—Ireland, 20—other places, 7.